

Comprehensive examination

The PhD comprehensive exam is an important milestone in a student's progression in the PhD degree in Sustainability Management. It is normally completed at the beginning of the second year of study.

SEED first admitted students to the PhD in Sustainability Management in 2018, after two years of development of the program. The program's comprehensive exam was developed to support a broad understanding of sustainability management as a common foundation for all students in the program.

In 2019, the University revised the general [requirements for the comprehensive examination](#) and the format used by SEED is not consistent with the new requirements. However, the School has been permitted to continue its current process, which has been termed a "qualifying exam" format of the comprehensive exam. The University is in the process of establishing university-wide requirements for the qualifying exams, which may be used by programs across the academy. In the interim, the School is required to provide students with the option of a more "traditional" comprehensive exam format.

Thus, for students who began their studies in the PhD in Sustainability Management in 2018 through 2021, there are two options for the PhD comprehensive exam:

EXPAND ALL

COLLAPSE ALL

OPTION 1 - QUALIFYING COMPREHENSIVE EXAM



OPTION 2 - TRADITIONAL COMPREHENSIVE EXAM



The purpose of the comprehensive exam is to demonstrate that a student has the appropriate academic background – including a foundation and breadth of knowledge in the field of study – and the capacity to engage in scholarly communications – both oral and written – to be successful in the PhD program in Sustainability Management.

The traditional comprehensive examination for the PhD in Sustainability Management is a test with written and oral components.

Please see the [University requirements for the comprehensive examination](#).

Exam timing

The comprehensive examination will take normally place in the fall term of the second year of the program (the fourth term of study).

Students are normally expected to successfully complete the comprehensive exam requirement no later than the end of their fifth term of study. Students who have completed previous studies in another PhD program at the University of Waterloo or at another university, are expected to successfully complete the comprehensive exam not later than their fourth term of studies in their current program or their seventh term of study at the PhD level, whichever is longer.

For a student who may not meet this timing, for example for reasons of health or other extenuating circumstances, the student may petition requesting extension as per the [University requirements for the comprehensive examination](#).

Pre-Requisites

Students must have completed the core courses (SUSM 701: Advanced theories and SUSM 702: Research design and methods) before attempting the comprehensive examination; ideally, elective courses required as part of the PhD in Sustainability Management should also be completed prior to the examination.

SUSM 701 and SUSM 702 play crucial roles in the preparation of students for the comprehensive examination. The literature reviewed in SUSM 701 and SUSM 702 normally provide the foundation for the student's PhD reading list.

Following completion of SUSM 702, and in the months prior to the examination, students are advised to prepare "focus papers" – critical reviews of the literature that engage with key issues in their literature. These are a useful tool for revealing gaps in knowledge and demonstrating the capacity to undertake the examination. Topics for focus papers should be identified in consultation with the student's supervisor and other members of the comprehensive examination committee (see below). Preparation of focus papers is entirely optional, and students can follow alternate formats, in consultation with their supervisor and the committee, to prepare for the comprehensive exam. Students may use text they have prepared for focus papers in their comprehensive examination paper (see below).

Comprehensive Examination Committee

For the traditional comprehensive exam, the examining committee is composed with an understanding that some or all members of the student's comprehensive examination committee may serve as members of the advisory committee. However, it is not required or expected that participation as a member of the comprehensive examination committee will lead to membership on the advisory committee.

The comprehensive examination committee has at least four voting members. Normally, the membership of the committee aligns with University requirements of the [PhD thesis examining committee](#) (excluding the external examiner), with four members:

- Supervisor or Co-supervisors
- Internal Member (from SEED)
- Internal-external Member (internal to the University but external to SEED)
- Other Member(s)

Each member must have a PhD degree, should be a tenured or tenure-track faculty, and hold a faculty appointment at the University of Waterloo. Additional guidance is provided in the University requirements of the [PhD thesis examining committee](#).

The comprehensive examination committee must be approved by the Associate Dean, Graduate Studies (ENV), or delegate.

The comprehensive examination committee should be formed no later than the end of the third term of full-time enrolment in the SEED PhD program. Students should consult with their supervisor (or

co-supervisors) on suitable members. The supervisor must ensure that prospective members not only meet the requirements specified above, but also are acceptable to the student.

Reading list

The comprehensive exam reading list provides a set of literature for the exam. The readings used in the courses SUSM 701 and SUSM 702 form an initial reference for the developing the list.

Readings are selected by the student in consultation with their supervisor(s) and other members of the examining committee. It is normal for the student's specific research interests to be situated within the broad scope of the literature covered by the examination.

Students are encouraged to work closely with the members of the comprehensive examination committee in the time leading up to the examination. For example, it is appropriate and desirable for the candidate to ask for advice on relevant bodies of literature and specific publications in the reading list; and to seek feedback on focus papers and other materials prepared prior to the examination. At minimum, the supervisor and the candidate shall arrange one meeting of the full committee well in advance of the examination date to discuss the scope of the examination and to review the proposed reading list.

The committee shall approve the final reading list used for the comprehensive examination.

Comprehensive Examination Question

The comprehensive examination is based on a question developed by the supervisor, with the advice of the committee. The question may have multiple parts.

Comprehensive examination questions can take various forms, but all must address the purpose of the comprehensive exam. However, the comprehensive examination must not be narrowly focused on the student's specific planned research or research proposal.

The draft question must be approved by the Associate Director, Graduate Studies. The supervisor is responsible for ensuring that the draft question is provided to the Associate Director, Graduate Studies, for approval at least five business days prior to the anticipated date on which the student receives the question. The Associate Director, Graduate Studies, will ensure that the draft question is reviewed promptly (normally within two business days).

Exam format and written component

The first component of the comprehensive examination is a written response to the comprehensive examination question.

The question will be released to the student by the SEED Graduate Program Administrator via email on a date determined by the Associate Director, Graduate Studies (in consultation with the supervisor). Normally this occurs by 9:00 AM Eastern time. Following submission of the candidate's written answer, a public notice of the oral examination will be announced by the Graduate Program Administrator.

Importantly, the comprehensive examination is an individual test. Release of the question to the student marks the beginning of a period during which the student may not receive advice or assistance on any part of the examination (including the oral phase), except as noted below regarding seeking clarification of the question from the advisory committee within two business days. This period ends following the oral examination, after which students are free to seek advice or feedback from anyone.

On receiving the question, the candidate has two business days to ask the members of the comprehensive examination committee questions of clarification, and to receive clarification. After this time has passed, and until the end of the oral examination, it is forbidden for the candidate to seek advice or assistance from anyone. The candidate must complete the written response alone, without any assistance. This includes assistance with spelling, grammar and other writing concerns.

The written portion of the examination will be a paper no longer than **10,000 words**. The exam paper should follow the SEED academic style guide for a paper of this length:

- cover page (showing word count and iThenticate similarity score for the paper)
- page numbers
- 11 or 12-point font size
- normal (1 inch) margins
- numbered section headings
- table of contents
- references in APA style
- inclusive language should be used, as per [University guidance](#)

The 10,000-word limit maximum will be strictly enforced. Any paper exceeding the limit may not be read in its entirety, at the discretion of the committee. Word count does not include cover page, table of contents or references list. Each figure or table in the paper will be counted as 250 words. Any appendices or other attachments are included in the word count and will be considered in the word count.

Students must submit their response by email in **both Word and PDF formats** to the Graduate Program Administrator by 4:00 PM Eastern time three weeks after the day they receive the question. Failure to submit the written portion of the comprehensive exam in the required format by the specified date and time will result in a negative outcome unless a prior legitimate reason has been approved by the Associate Director, Graduate Studies, in advance. Examples of legitimate reasons include serious illness or injury occurring during the three-week writing period. Candidates who require an extension must notify the Associate Director, Graduate Studies, by email prior to the due date.

Students may warrant an accommodation to allow for an alternative exam format other than the norm as described, as per the [University requirements for the comprehensive examination](#).

Assessment

Consistent with the purpose of the comprehensive examination, the student will be assessed on the following criteria:

- Answer to the exam question.
- Critical thinking, originality and synthesis of ideas, including the ability to present an argument or position.
- Breadth of knowledge, including use of the reading list as a foundation of knowledge.
- Depth of knowledge, including conceptual and theoretical engagement.

- Quality and demonstrated communication ability, including written and oral, as appropriate.

Oral defence

The oral defence is the second component of the comprehensive exam and takes place after submission of the written component.

The oral defence normally will take place within 15 business days of submission of the paper. The date and time for the oral examination will be established prior to the student receiving the question. The student's supervisor is responsible for working with the student and the Graduate Program Administrator to identify a suitable date and time. The Graduate Program Administrator will make the arrangements for the defence.

The oral defence is open to the University community.

The entire oral defence, including all stages described here, must be completed within a maximum of three hours. Failure to appear for the oral defence without approval from the Associate Director, Graduate Studies, or the SEED Director if the Associate Director, Graduate Studies is a member, will result in failure.

An examination Chair, who is not a voting member of the comprehensive examination committee, will be appointed by the Associate Director, Graduate Studies. The Chair will be a SEED faculty member, or a faculty member from another unit whose members regularly participate in the PhD program, and must have Approved Doctoral Dissertation Supervision (ADDS) status.

The **examination Chair** is responsible for the conduct of the oral examination, and for ensuring that University of Waterloo and SEED requirements and procedures are followed. He or she will ensure that the examination is fair, and that it is completed on time. The Chair does not participate in the exam by asking questions.

After the examination, the Chair will indicate the decision of the examiners on the PhD comprehensive examination report form; will ensure conditions established by the examining committee related to the decision are clearly written on the report form with supplementary notes as needed; will ensure that any feedback for the student is recorded; and will deliver the report form to the Graduate Program Administrator without delay.

The Associate Director, Graduate Studies, will ensure that any written conditions have been implemented before successful completion of the comprehensive examination is reported to the Graduate Studies Office.

The format for the oral defence is as follows:

The defence begins with introductions and brief comments by the Chair on the order of proceedings, followed by an oral presentation by the candidate outlining the key contents and conclusions in the comprehensive paper. The candidate may make use of computer and projector presentation equipment and/or other suitable visual aids. The oral presentation should be no longer than 20-minutes.

Following the presentation, examiners will ask questions. Normally questioning takes place in two rounds, with the first round lasting no more than 60-minutes (up to 15-minutes per examiner) and the second round lasting no more than 40-minutes (up to 10-minutes per examiner). The internal-external member of the committee asks questions first followed by committee members and the supervisor (or co-supervisor) will be the last questioners in each round. Co-supervisors share a 15-

minute (round one) or 10-minute (round two) time block. Once both rounds of questioning from examiners are completed, the Chair may, at his or her discretion, invite members of the audience to ask questions.

In their questioning, examiners should focus on issues and topics arising from the candidate's written response to the comprehensive examination question. However, examiners are free to ask any questions needed to test the candidate's knowledge and understanding of the leading literature and perspectives in the broad area of transdisciplinary research relating to the sustainability management, and the leading literature and perspectives in the student's specific field(s) of study.

Questions should be brief and succinct to ensure the majority of time is available for student responses

Examiners are reminded that the comprehensive exam is not a proposal defence. Technical questions about the execution of the research (e.g., research methods) are generally not appropriate unless a specific focus of the comprehensive paper.

At the end of the question period, the candidate and the audience are excused while the committee deliberates on the adequacy of the examination paper and the oral defence relative to the goals of the SEED comprehensive examination.

The Candidate is then asked to return, and the decision of the Committee is communicated to the student by the Chair.

Typical Schedule for the Oral Defence

The Oral Defence takes place within three hours, maximum, from start to finish. The following is a typical schedule:

- Introductions and instructions (10 minutes) Presentation by the student (20 minutes)
- First round of questioning (60 minutes – maximum 15 minutes for each examiner; co-supervisors share the 15 minutes)
- Break (10 minutes)
- Second round of questioning (40 minutes – maximum 10 minutes for each examiner; co-supervisors share the 10 minutes)
- Deliberation of outcome (30 minutes)
- Reporting of results (10 minutes)
- *Total: 180 minutes*

Outcomes of the comprehensive exam

The outcome of the exam is determined by the majority vote of the examining committee, as specified in the [University requirements for the comprehensive examination](#).

Evaluation of the candidate's performance begins with the examination Chair asking each of the member of the examination committee, in the order of questioning, whether the written and oral parts of the examination, taken together, demonstrate that the candidate has the necessary foundation to proceed in the PhD program.

On a candidate's first attempt, after allowing for reasonable discussion of any issues that may arise, the Chair will ask each member of the examination committee to state his or her position on the candidate's written paper and oral defence, using the following categories:

- **Passed:** the candidate successfully completed all requirements of the examination.
- **Passed conditionally:** the candidate will be considered to have completed the exam successfully upon having satisfied conditions established by the examining committee. The conditions shall be communicated to the student in writing; contain the date by which the conditions must be satisfied; and, identify the member(s) of the examining committee responsible for determining that the conditions have been met. Normally, this determination will be made by at least one member of the committee in addition to the student's supervisor or co-supervisors. Failure to satisfy the conditions within the designated time limit shall result in an outcome of Re-examination.
- **Re-examination:** the candidate will be required to repeat the exam. In this case, the student shall be provided written communication that identifies the deficiencies in the exam that led to this outcome and the deadline by which the re-examination must take place. In the case of re-examination, it is anticipated that the committee membership will be the same as the initial committee. Any change in membership must adhere to committee formation rules outlined above, and be approved by the Associate Dean, Graduate Studies (ENV), or delegate.

When a candidate is re-examined, the outcomes are limited to:

- **Passed**
- **Exam Unsuccessful:** the candidate will be deemed to have failed to satisfy the program's comprehensive exam requirement. In this case, the student shall receive written communication identifying the deficiencies in the exam that led to this outcome.

A student who is deemed to have failed to satisfy the comprehensive exam requirement may not continue in the current PhD program. The student's status will change to *Required to Withdraw* in the term immediately following the term in which the examination took place. The student may seek admission to another PhD program or to any Master's degree program at the University of Waterloo.

The outcome of the exam (first, and re-examination) is determined by the majority vote of the examining committee. The following rules govern the voting process:

- In the case where the student is co-supervised, the co-supervisors' votes shall count as one vote.
- In the case where only two outcomes receive votes and the number of votes is equal for both outcomes, the decision shall be for the less positive outcome, provided that outcome is not exam unsuccessful.

If the previous case results in an exam unsuccessful outcome, or if no majority is obtained, the case shall be referred to the Faculty of Environment's Associate Dean, Graduate Studies (ENV), who shall make the final determination of the outcome of the exam.

Those members of the examining committee who are voting members shall be clearly communicated to the candidate. The Chair of the examination is not a voting member.

A student may seek reassessment of the exam evaluation only when the outcome is *Re-examination* or *Exam Unsuccessful* based on the quality of the written element of the comprehensive exam. A student

may not seek a reassessment based on the oral component. A request for reassessment shall follow the process described in Policy 70 (reassessment challenge).

Academic Integrity

The University considers academic integrity to be an integral part of all scholarship. Violations of academic integrity are handled under University Policy 71.

Students shall employ the University's plagiarism detection software prior to submitting the written response to the examining committee. Students are encouraged to discuss the reports generated from the software with their supervisor(s) to avoid academic integrity violations; such a discussion must be limited to the report generated from the software. The report that evaluates the student's written submission shall be included with the student's written element and shall be made available to the committee.

In the event that anyone suspects a violation of academic integrity in the written response the student has submitted, the following process shall be followed. The person identifying the possible violation shall communicate the concern in writing *only* to the Associate Dean, Graduate Studies (ENV). The Associate Dean, Graduate Studies (ENV) shall then assess the allegations. If the vetting cannot be completed prior to the scheduled date of the oral component of the exam, the oral exam shall be postponed, pending the outcome of the investigation. If the vetting is completed prior to the oral exam, and no violation is identified, then the exam can be held as scheduled.

When a change in comprehensive examination date is necessary, the Associate Dean, Graduate Studies (ENV) shall inform the candidate, the supervisor or co-supervisors and the Associate Director, Graduate Studies not later than one week prior to the date of the scheduled exam. If a violation is determined to have happened, the Associate Dean shall proceed under Policy 71. If no violation is deemed to have occurred, the exam shall be rescheduled to the satisfaction of the student, the supervisor(s), and the examining committee.

Investigations related to academic integrity in which the student is determined to not have committed such a violation are considered to be a valid extenuating circumstance to extend the examination deadline.

If an academic integrity violation is believed to have occurred during the oral component of the comprehensive exam, the person suspecting the violation shall ask the Chair to pause the exam. The concerns identified shall be communicated to the Chair (only) who will then determine the course of action. If the Chair believes that uncertainty exists regarding the concerns identified, the Chair may determine that the exam shall continue and the potential academic integrity violation will be vetted after the completion of the exam. If the Chair believes that the suspected violation is likely to be valid or that the alleged occurrence precludes a fair evaluation of the candidate, the Chair shall then suspend the exam until a determination can be made as to whether an academic integrity violation has occurred.

In both cases, the suspected academic integrity violation shall be reported to and investigated by the Associate Dean, Graduate Studies (ENV) under Policy 71.

Summary of Steps and Stages in the Comprehensive Examination Process

| WHAT | WHO | WHEN |
|--------------------|---------|------------------------------------|
| Complete SUSM 701, | Student | Prior to comprehensive examination |

| | | |
|---|---|---|
| SUSM 702 and required electives | | (normally first two terms) |
| Form the comprehensive examination committee | Supervisor and Student identify members consistent with rules Committee must be approved by Associate Dean, Graduate Studies (ENV), or delegate. | Full committee must be formed no later than end of third term of full time enrolment |
| Finalize reading list | Student prepares, normally starting with SEED 702 Supervisor and members of the comprehensive examination committee provide advice and suggestions; formal approval is not required | A draft complete reading list should be completed prior to the first full meeting of the Committee |
| Prepare focus papers in consultation with supervisor, and Comprehensive Committee if formed (optional) | Student | After SUSM 702 and before receiving the comprehensive examination question |
| Arrange and hold one meeting of the full Committee to evaluate the Reading List and assess the student's readiness | Student arranges the meeting in consultation with the Supervisor | Following formation of the Committee and before the Examination Students should consult members bilaterally prior to this meeting as appropriate |
| Scheduling the oral defence | Student's supervisor works with the student and the Graduate Program Administrator to identify a date and time Graduate Program Administrator arranges all facilities | Preparations should be in place prior to submitting the question to the student |
| Formulate comprehensive examination question | Supervisor, in consultation with Committee, drafts question and submits to Associate Director, Graduate Studies Associate Director, Graduate Studies approves the question, in consultation with at least two members of the Graduate Affairs Committee, if deemed necessary | Supervisor submits question for approval to Associate Director, Graduate Studies, at least five business days prior to the scheduled date of when the student receives the question. Associate Director, Graduate Studies, completes review promptly, within two days recommended. |
| Provision of comprehensive examination question to Student | Graduate Program Administrator | Emails question by 9:00 AM Eastern time on the first day of the written portion |

| | | |
|---------------------------------------|--|---|
| Submission of written response | Student | Submits the written response by 4:00 PM Eastern time three weeks after receiving the question |
| Oral defence | Student, comprehensive examination committee | Within 10 business days of submission of the written response |

Please also see the [University requirements for the comprehensive examination](#).
